**Individual Project due 24:00 7 October, 2012 (to be loaded onto your wiki).**

**Name:**

Project - Thin client network for a small business + remote energy audit

e.g. (only) <http://www.smartnow.com.au/>



The project could concentrate on installing a thin client network for a small business with solar panels, gel batteries, inverter and a small network of 20 desktop PC’s which may include a server, printer and other necessary equipment. The proposed network provides service to an office that has fluorescent lighting. Classes operate between the hours 8.30am to 3.30pm (7.00 hours)

Assumptions:

• The existing computer network is ON 5.5 days per week 24 hours per day

• The existing lighting is ON 5.5 days per week 10 hours per day

**Individual Project**

1. Negotiate with the stakeholders to establish the extent to which sustainability is to be integrated

Answer: there are known varying levels in which you can implement sustainability into this project. When upgrading and providing a solution to this scenario I believe it would be prudent to implement the solution using EPEAT Gold certified equipment that also have an energy star rating. These devices will be thin clients to replace the current desktop models. The Thin clients will run off POE, this will mean the switch will need to be upgraded. New software will need to be installed on the server to ensure that it can handle the requirements and also to make it into a Terminal Server. Also using power management devices and power monitoring devices these will allow you to reduce your overall power consumption and expenditure.

**Hardware**

□ low powered hardware - the hardware I will be using is HP T410 All in one.

<http://h10010.www1.hp.com/wwpc/us/en/sm/WF06a/12454-12454-321959-338927-5231345-5234230.html?dnr=1>

□ energy efficient architecture I will also be using a Cisco 2960 series switch with POE

<http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps6406/product_bulletin_cisco_catalyst_2960_series_switches_with_power_over_ethernet_poe.html>

Summary: My Individual Project uses ….

**Software**

□ energy management software the power management device I will be using is Verismic Power Manager to reduce the power consumption

<http://www.verismic.com/pc_power_management.html> alongside a EnviR power monitoring tool to confirm power readings and catalogue power consumption.

**Printing**

□ local for this solution I will be using a Xerox ColorCube printing efficient device.

<http://www.office.xerox.com/printers/color-printers/colorqube-8570/enus.html>

□ online for the more complex printing requirements that cannot be completed on site I will be recomending to use a 3rd party offsite printing company. The recommended company is Vista print.

[Www.vistaprint.com.au](http://Www.vistaprint.com.au/)

2. Advise short term technology solutions to achieve reduction of power consumption

Answer: Short term solution to reduce power consumption would be to minimise the current onstate of the equipment. For example as the class only runs from 830 to 330pm and is not in use after 330pm then it would make sense to power the equipment off during that time period until 830 the next morning. In a 5.5 day week that is a saving of 93.5 hours of power. The same method can be used for lighting, as the lighting is on for 10 hours a day yet the class is only in use for 7 hours a day, turning the lighting off at the end of class and back on when class starts will reduce usuage by 3 hours days. Times this by 5.5 times a week and that is a saving of 16.5 hours a week. So a cumulative saving of 110 hours a week in energy consumption. The server and infrastructure devices will need to be left powered on due to services such as backups and updates to complete during the off periods. To take the saving one step further you can schedule updates and backups during the day and have the server power off in the afternoon after class has finished and power back up in the morning prior to class starting. THis can be done for the infrastructure itself as well.

3. Identify energy usage within the scope of the ICT project and provide a detailed report

Answer:

|  |  |  |
| --- | --- | --- |
| **Condition** | **Power consumption**  **(watts)** | **Notes** |
| OFF |  |  |
| MAX BOOT |  |  |
| IDLE |  |  |
| Wordprocessing |  |  |
| Spreadsheets |  |  |
| Web browsing  <http://news.bbc.co.uk/2/hi/programmes/click_online/default.stm> |  |  |
| Low level music  [http://grooveshark.com/#/s/Fall+At+Your+Feet/3KIZB0?src=5](#/s/Fall+At+Your+Feet/3KIZB0?src=5) |  |  |
| Low level video  [http://www.joost.com/39w1yk49/#/?video\_info=33p1yw1t](#/?video_info=33p1yw1t) |  |  |
| Monitor |  |  |
| Printing |  |  |

**PowerPoint Presentation**

Create a PowerPoint presentation of your individual Project with the following slides:

1. The Basics of preparing to integrate sustainability into ICT planning and design projects;
2. ICT sustainability from a business standpoint;
3. Energy efficiency as a stepping stone to sustainability;
4. Individual Project Strategy
5. Network operation and security;
6. Sketch of the recommended project system;
7. Test results
8. Short term technology solutions to achieve reduction of power consumption;
9. Energy usage within the ICT project - graph
10. Recommendations and Conclusion.

**Individual Report**

**For your individual project answer the following:**

1. Explain how sustainability can be integrated into your individual Project
2. Research and identify suitable technology solutions applicable to the project
3. Explain the power consumption data compared to benchmarks
4. Advise how sustainable management principles may be applied to your individual project resulting in reduced environmental impact
5. Provide key performance indicators (KPI) - sustainability performance for your individual Project

**Key Performance Indicators**

|  |  |  |  |
| --- | --- | --- | --- |
| **Hardware** | **SD-KPI 1: Energy / greenhouse gas efficiency of production / products in use**  **(tons CO2)** | **SD-KPI 2: Proportion of products with “Design for Environment” / Eco-Label**  **()**  **or (x)** | **SD-KPI 3: Emissions of (hazardous) waste and toxic materials**  **Yes or No** |
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1. Advise what actions could improve the KPI’s for your Individual Project which foster sustainability and environmental best practice
2. Evaluate the estimated CO2 emissions with comparable benchmarks; and
3. Estimate the carbon dioxide (CO2) emissions for the Individual Project; and Individual Project + Recommended Actions

|  |  |  |  |
| --- | --- | --- | --- |
| **Hardware** | **Benchmark**  **(tons CO2)** | **Individual Project**  **(tons CO2)** | **Individual Project**  **+**  **Recommended Actions**  **(tons CO2)** |
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1. Make recommendations in order of priority and give estimates of implementation costs on integration of sustainability for other ICT projects; and
2. Estimate potential energy savings and payback periods for recommended actions

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| --- | --- | --- | --- | --- |
| **Recommendation** | **Priority** | **Implementation Cost** | **Energy Saving** | **Payback Period** |
|  |  |  |  |  |
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